

REMARKS

Claims 1, 19 and 37 have been amended to further clarify the subject matter regarded as the invention. Claims 1-37 are still pending. In the Office Action, the Examiner rejected claims 1-19 as being anticipated by one or more of the U.S. patents: *Moslehi et al.*, *Li et al.*, *Hartig et al.*, and *Ishii et al.* The Examiner also rejected claims 10, 11 and 19-37 under 35 U.S.C. §103(a) in view of one or more of the following U.S. patents: *Li et al.*, *Hartig et al.*, *Ishii et al.*, *Ueda et al.*, *Kadomura et al.* and *Moslehi et al.* In addition, the Examiner has taken several "Official Notices". The Applicant hereby seasonably challenges the Examiner and respectfully requests that the Examiner provide evidence supporting all the "Official Notices" taken in the Office Action. Entry of this Amendment and reconsideration of the application are respectfully requested based on the following remarks.

REJECTION OF CLAIMS UNDER 35 USC §102(e) and 35 USC §102(b)

In this Office Action, the Examiner rejected claims 1-2, and 7-11 under 35 U.S.C. §102(e) as being anticipated by *Moslehi et al.*; rejected claims 1, 3, 7-9, 12-13 and 15-18 under 35 U.S.C. §102(e) as being anticipated by *Li et al.*; rejected claims 1-2, 7-9 and 12-14 under 35 U.S.C. §102(b) as being anticipated by *Hartig et al.*; and rejected claims 1-9 and 12-18 under 35 U.S.C. §102(b) as being anticipated by *Ishii et al.*

Independent claim 1, among other things, recites:

a gas flow system coupled to said plasma processing chamber, said gas flow system controlling flow of input gas into at least two different regions of said plasma processing chamber; said input gas being a source gas suitable for use to etch the substrate in the plasma processing chamber ;and

wherein the at least two different regions include at least one peripheral region of the plasma processing chamber.

It is noted that *Moslehi et al.* provides for a gas shower head that separates multiple processes in a manner that avoids premixing gases, thereby minimizing gas-phase nucleation and particulate generation. (*Moslehi et al.*, abstract) However, *Moslehi et al.* does not teach or suggest gas flowing from a peripheral region of the plasma processing chamber. A gas shower head as described by *Moslehi et al.* only puts gas from the top portion of the plasma processing chamber. Accordingly, it is respectfully submitted that there is no teaching and suggestion in *Moslehi et al.* with respect to a gas flow system for controlling flow of source gas into at least two regions including at least one peripheral region of the plasma processing chamber. Thus, claim 1 is patentable over *Moslehi et al.* for at least this reason alone.

Li et al. pertains to an independent gas feed in a plasma reactor. It is noted that *Li et al.* teaches that better unity can be achieved by independently controlling injecting of different components of the processing gas from different parts of the chamber. However, *Li et al.* proposes injecting active etching (source gas) components from ports around the peripheral of the wafer and injecting the carrier gas from the showerhead (see, for example, *Li et al. Col. 2 line 66 to Col. 3 line 5*). It is respectfully submitted that *Li et al.* does not teach or suggest the source gas to be flown into at least two regions. Accordingly, there is no teaching and suggestion in *Moslehi et al.* with respect to a gas flow system for controlling flow of source gas into at least two regions including at least one peripheral region of the plasma processing chamber. Thus, claim 1 is patentable over *Li et al.* for at least this reason alone.

Hartig et al., similar to the teaching of *Moslehi et al.*, describes a gas shower. Clearly, as can be seen in figures 2 and 3, the gas supply system (20) releases gas only from the top portion. Accordingly, it is respectfully submitted that there is no teaching or suggestion in *Moslehi et al.* with respect to a gas flow system for controlling flow of source gas into at least two regions including at least one peripheral region of the plasma processing chamber. Thus, claim 1 is patentable over *Hartig et al.* for at least this reason alone.

It is noted that *Ishii et al.* describes a control system for a processing system that includes an optical system (35) and optical sensor (36). As a result, light from a plasma generated in the processing system can be received by the optical sensor (36) through the optical system (35). In this way, a controller (37) can send control signals to the back-cooling gas source 15 and the process gas mass flow controller (28) on the basis

of the feedback signals from the sensors (36) and (38). (*Ishii et. al.*, Col. 6, 34-62). However, it should be noted that the process gas mass flow controller (28) flows the source gas (active or process gas) that is used to etch the substrate only from a top portion. Hence, *Ishii et al.* does not teach or suggest the source gas to be flown into at least two regions. Accordingly, there is no teaching and suggestion in *Ishii et al.* with respect to a gas flow system for controlling flow of source gas into at least two regions including at least one peripheral region of the plasma processing chamber. Thus, claim 1 is patentable over *Ishii et al.* for at least this reason alone.

In view of foregoing, it is respectfully submitted that independent claim 1 is patentable over the cited art. Furthermore, claims that depend on claims 1 are patentable over the cited art for at least the same reasons as discussed above. Moreover, the dependent claims recite additional features that render them patentable for additional reasons. Therefore, it is respectfully requested that the Examiner withdraw the rejections made under 35 USC §102(e) and 35 USC §102(b)

REJECTION OF CLAIMS UNDER 35 USC §103(a)

In this Office Action, the Examiner rejected claims 10, 11 and 19-37 under 35 U.S.C. §103(a) in view of one or more of the following U.S. patents: *Li et al.*, *Hartig et al.*, *Ishii et al.*, *Ueda et al.*, *Kadomura et al.* and *Moslehi et al.*

As conceded by the Examiner, there is no teaching or suggestion in *Ueda et al.* or *Kadomura et al.* with respect to a gas flow system as recited in independent claims 19 and 37. However, the Examiner asserts that the deficiencies of *Kadomura et al.* and *Moslehi et al.*, in this respect, are cured by one or more of the following U.S. patents: *Moslehi et al.*, *Li et al.*, *Hartig et al.*, and *Ishii et al.* However, as shown above, none of these references teach or suggest a gas flow system for controlling flow of source gas into at least two regions including at least one peripheral region of the plasma processing chamber. Since independent claims 19 and 37 both recite this element, it is respectfully submitted that independent claims 19 and 37 are patentable over the cited art. Furthermore, claims that respectively depend on claims 19 and 37 are patentable over the cited art for at least the same reasons as discussed above. Moreover, the dependent claims recite additional features that render them patentable for additional

reasons. Therefore, it is respectfully requested that the Examiner withdraw the rejections made under 35 USC §103(a).

In view of foregoing, it is respectfully submitted that claims 1-37 are patentably distinct from the cited references. Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below. Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388.

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